

# DIMINISHING RETURNS BINGO GAMES AND METHODS THEREOF

## Cross-Reference to Related Application

5        This application claims priority of U.S. Provisional  
Application No. 60/477,996, filed June 6, 2003, entitled: A  
Variation of Bingo for Casinos that Allows Management to  
Control the Player Disadvantage and Permits Solitary Play by  
Jimmie R. Kilby.

## Field of the Disclosure

10        This disclosure relates generally to bingo games and  
methods, and more particularly to diminishing returns bingo  
15        games and methods thereof, where for-profit operators of bingo  
games can control the player disadvantage so that when a sole  
player pays for and selects any quantity of cards per bingo  
game and pays for and pre-selects a plurality of bingo number  
patterns for each card, as the bingo game proceeds to  
20        completion, the player realizes a diminishing return on any  
one of the player's bingo cards depending on the quantity of  
bingo numbers drawn to match the player's plurality of pre-  
selected bingo number patterns.

## Background

25        Traditionally a game of bingo permits a group of players  
to purchase 5 x 5 bingo cards containing 24 bingo numbers and  
a "free space" in the center of the card. Bingo numbers  
30        between 1 and 75 are drawn at random either mechanically or  
electronically until players of the group simultaneously  
achieve a "bingo" defined by a set of rules. Generally a

"bingo" occurs when a player lines up contiguous bingo numbers diagonally, vertically or horizontally on the purchased card. Other versions of a "bingo" require the four corners of a card, the entire frame of a card or every bingo number of a  
5 bingo card to match the bingo numbers that are randomly drawn during the bingo game. In most traditional bingo games, a minimum of four bingo numbers that are either contiguously lined up with the "free space" (i.e. a diagonal) or alternatively a minimum of five bingo numbers that are  
10 contiguously lined up vertically or horizontally on the bingo card and match the drawn bingo numbers provide a declared "bingo". In other versions of bingo, such as English bingo, bingo numbers between 1 and 90 are randomly drawn until a "bingo" is achieved. In English bingo, there is a pool of 90  
15 numbers to be drawn. The 90 numbers have no letter designations. The numbers are drawn sequentially from the pool of 90 numbers and a player wins when all 5 numbers on a single row of the player's card match up to the numbers that are drawn.

20 Only the first players to call out "bingo" with appropriately matching bingo number patterns receive obligated winnings. The operator has no mathematical advantage on any bingo game so that if insufficient cards are sold by an operator of the bingo game, and the obligated payout for all  
25 player declared "bingos" exceeds the value of the cards sold, the operator will realize a loss.

For traditional bingo, the requirement of having numerous players limits configuration of bingo games where only a single player plays against an operator. In addition, bingo  
30 winnings are fixed regardless of the amount of players to protect the operator from excessive losses that would result from large or progressive jackpots.

Odom, U.S. Patent 6,581,935 disclosed an electronic device and method for playing a bingo game where a player inputs a wager and a randomly generated bingo card is displayed. Odom's '935 electronic device randomly selects a  
5 set of (operator's) 25 bingo numbers and compares them to those on the card of the player to see whether a winning pattern is obtained, which results in a reward for every matching pattern on the player's card according to a predetermined payout table. A second set of 10 bingo numbers  
10 is randomly selected and compared to all bingo numbers on the player's card and if all bingo numbers match the player's card, the player receives a second award. The game ceases as soon as all 35 balls are drawn leaving 40 balls not drawn in a 1 to 75 ball version of bingo. The player can select the  
15 bingo numbers for the bingo card to be played and can make a desired wager up to a pre-selected maximum wager. Payouts are based on a predetermined payout table award for obtaining particular patterns chosen by the player or the randomly distributed player's card that conform with the requirements  
20 of bingo as discussed supra.

Current for-profit games come in a myriad of configurations. Successful games have a number of common elements, which include: a player deciding a bet, i.e. a condition under which the player wins; the player making a  
25 wager; the game process beginning; a suspense or anticipation period, i.e. between the game process beginning and a final ending; and a settlement at the end where winning bets are paid and losing bets are collected. Suspense is one of the most important of the elements. For example in reel slot  
30 machines, a player waits in suspense for each reel to lock. In blackjack a player is in suspense while waiting to see if a dealer's hand betters the player's hand. For an electronic

bingo game to be a successful stand-alone solitary play for-profit game, the same elements must be present.

According to Odom's '935 patent one wager is permitted per game and there are as many wins as bingo number patterns  
5 that are matched. In Odom's '935 patent a fixed quantity of numbers are drawn and winnings depend on the total quantity of bingo number patterns matched on a bingo card, so that it is possible that no win is awarded for the player, contrary to the traditional bingo game. In Odom's '935 patent play ceases  
10 after the thirty-fifth number is drawn, so that irrespective of the player's selection of numbers on the player's card, there may be no match, contrary to the traditional bingo game where play continues until at least one player achieves a bingo match. In the Odom '935 patent the award for wins  
15 increases with the quantity of total bingo pattern matches rather than on the quantity of numbers drawn to achieve a bingo. Finally, in the Odom '935 patent an attempt is made to allow the player to increase the hit frequency for wins. The hit frequency is the percentage of times there is a win for  
20 the player. In Odom's '935 patent this is accomplished by the player having the option of changing the clock speed of the random number generator, providing the illusion of control over the results of the bingo game. However, because only a single bingo is wagered per game and the total number of  
25 numbers that are drawn is fixed, in fact the hit frequency remains the same.

In contrast, a diminishing returns bingo game combines features of bingo and the game of keno. According to the diminishing returns bingo game, the bingo game continues until  
30 all bingo number patterns that are pre-selected by the player are drawn. Winnings are based on the quantity of numbers drawn to achieve a bingo number pattern, and a player can make

multiple independent wagers in any bingo game, so that more than one bingo number pattern will be awarded a win depending on the player's wagers and the operator's payout table. The win awarded diminishes as more numbers are drawn. The player  
5 is in suspense during the entire drawing process of the bingo game to see what bingo number pattern matches lead to which payouts. The operator of the bingo game may change the quantity of awards in each payout table thereby altering the hit frequency for each bingo number pattern pre-selected by  
10 the player of the bingo game. For example, in a payout table where 20 draws or less of on an operator's pre-decided bingo winning patterns produce diminishing awards to the player depending on how few draws are necessary to match the player's pre-selected bingo number patterns on the bingo card, the  
15 operator may change the pay-out table to reward 30 draws or less matching the player's pre-selected bingo number patterns on the bingo card on a diminishing award basis for the same operator pre-decided bingo winning patterns. The result of broadening the quantity of awards in the payout table is to  
20 increase the hit frequency, because in the example described supra there are now 10 more draws added to the bingo game which provide diminishing rewards to the player, thereby providing the player with a greater chance of achieving a win. The operator may also choose to decrease the amount of each  
25 award to insure the operator's for-profit return even though the number of awards is increased. Since the player may pre-select multiple types of bingo number patterns and each one of the operator selected winning bingo number patterns may have a different diminishing award based on a multiplicity of payout  
30 tables with the possibility of different levels of hit frequencies for each one of the player's different types of pre-selected bingo number patterns, the award achieved by the

player for each one of the types of pre-selected bingo number patterns is independently based on the operator's selected hit frequency payout tables. In a diminishing returns bingo game it is easier for the for-profit operators to control the  
5 player disadvantage while producing the required anticipation of a win for the player.

For the foregoing reasons, there is a need to provide diminishing returns bingo games and methods thereof, where for-profit operators of bingo games can control the player  
10 disadvantage so that when a sole player pays for and selects any quantity of cards per bingo game and pays for and pre-selects a plurality of bingo number patterns for each card, as the bingo game proceeds to completion, the player realizes a diminishing return on any one of the player's bingo cards  
15 depending on the quantity of bingo numbers drawn to match the player's plurality of pre-selected bingo number patterns. In this inventor's application a player decides a wager in a bingo game. The wager is at least a bingo number pattern as selected by the player (see discussion supra). The player  
20 makes a wager and then the bingo game begins with bingo numbers chosen randomly. The player waits in suspense while bingo numbers are drawn until the player's chosen bingo number patterns are matched. The settlement is determined by how many numbers were necessary to be drawn to match to the  
25 player's selected bingo number patterns. Therefore, all elements necessary for a successful for-profit game are incorporated in this inventor's application.

## Summary

Accordingly, it is an object of this disclosure to provide diminishing returns bingo games where for-profit  
5 operators of bingo games can control the player disadvantage.

It is a further object of this disclosure to provide diminishing returns bingo games that do not require group play.

It is yet a still further object of this disclosure to  
10 provide diminishing returns bingo games for a single player.

It is a further object of this disclosure to provide diminishing returns bingo games where the award depends on the quantity of numbers required to be drawn to match to a player's pre-selected bingo number pattern.

15 It is yet a further object of this disclosure to provide diminishing returns bingo games methods where for-profit operators of bingo games can control the player disadvantage.

It is a further object of this disclosure to provide diminishing returns bingo games methods that do not require  
20 group play.

It is yet a still further object of this disclosure to provide diminishing returns bingo games methods for a single player.

It is a further object of this disclosure to provide  
25 diminishing returns bingo games methods where the award depends on the quantity of numbers required to be drawn to match to a player's pre-selected bingo number pattern.

## Preferred Embodiments

In accordance with one embodiment of this disclosure, a diminishing returns bingo game comprises in combination, means  
5 for randomly generating a plurality of bingo cards to permit each one of a plurality of players to pre-select a plurality of player bingo cards and to permit each one of the plurality of players to pre-select a plurality of player patterns for each one of said plurality of pre-selected player bingo cards;  
10 and means for randomly generating every bingo number of the bingo game to match to said plurality of pre-selected player patterns so that the plurality of players realize a plurality of diminishing awards as the quantity of randomly generated bingo numbers increases resulting in a controllable  
15 disadvantage predetermined by an operator of the bingo game.

In accordance with a second embodiment of this disclosure, a diminishing returns bingo game resulting in a controllable disadvantage by an operator of the bingo game to a plurality of players comprises in combination, a random  
20 number generator for randomly generating a plurality of bingo cards to permit each one of the plurality of players to pre-select a plurality of player bingo cards and to permit each one of the plurality of players to pre-select a plurality of player patterns for each one of the plurality of pre-selected  
25 player bingo cards; and the random number generator for randomly generating every bingo number of the bingo game to match to the plurality of pre-selected player patterns so that the plurality of players realize a plurality of diminishing awards as the quantity of randomly generated bingo numbers  
30 increases.

In accordance with a third embodiment of this disclosure, a method for offering a diminished returns bingo game



comprises the steps of randomly generating a plurality of  
bingo cards to permit each one of a plurality of players to  
pre-select a plurality of player bingo cards and to permit  
each one of the players to pre-select a plurality of player  
5 patterns for each one of the plurality of pre-selected player  
bingo cards; and randomly generating every bingo number of the  
bingo game to match to the plurality of pre-selected player  
patterns resulting in a controllable disadvantage  
predetermined by the operator of the bingo game so that the  
10 plurality of players realize a plurality of diminishing awards  
as the quantity of randomly generated bingo numbers increases.

The foregoing and other objects, features, and advantages  
of the disclosure will be apparent from the following, more  
detailed description of the preferred embodiments of the  
15 disclosure, as illustrated in the accompanying drawings.

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## Brief Description of the Drawings

Fig. 1 is a portion of an electronic screen of a gaming machine showing an unmarked bingo card display, in accordance with this disclosure;

Fig. 1A is the portion of the electronic screen of the gaming machine showing the bingo card of Fig. 1 marked up with potential patterns comprising four bingo numbers;

Fig. 1B is the portion of the electronic screen of the gaming machine showing the bingo card of Fig. 1 marked up with potential patterns comprising five bingo numbers;

Fig. 1C is the portion of the electronic screen of the gaming machine showing the bingo card of Fig. 1 marked up with another set of potential patterns comprising four bingo numbers;

Fig. 1D is the portion of the electronic screen of the gaming machine showing the bingo card of Fig. 1 marked up with a frame pattern comprising bingo numbers;

Fig. 1E is the portion of the electronic screen of the gaming machine showing the bingo card of Fig. 1 marked up with a cover-all pattern comprising bingo numbers;

Fig. 2 is a portion of the electronic screen of the gaming machine showing a bingo payout table for the potential patterns comprising four bingo numbers of Fig. 1A; and

Fig. 2A is a portion of the electronic screen showing a bingo payout table for the potential patterns comprising five bingo numbers of Fig. 1B.

## Description of the Disclosure

According to Fig. 1 a portion of an electronic screen of a gaming machine comprises an unmarked bingo card 10. The  
5 bingo card 10 is a standard 5x5 array of rows and columns headed by the column letters "B", "I", "N", "G", "O". The numbers available for the letter headed "B" are 1-15, for "I" the bingo numbers are 16-30, for "N" the bingo numbers are 31-45, for "G" the bingo numbers are 46-60 and for "O" the bingo  
10 numbers are 61-75. In traditional bingo it is common practice to call out each bingo number using the column letter and bingo number as described supra. Referring to Fig. 1, a designation for a bingo number of the bingo card called out during a drawing of the bingo game might be I30, which  
15 represents the column "I" having the bingo number 30. However, this does not identify the row placement for I30. Therefore, circled co-ordinate letters A to J are displayed at the side of the bingo card 10 for convenience of further description in this application. Co-ordinates of the bingo  
20 card 10 are described as the array (row, column). For example, a space designated "FREE" is at the center of the bingo card 10 at the co-ordinates (H, C) and is treated as though that particular bingo numbered square has been drawn and filled.

25 The electronic screen of the gaming machine displays at least an unmarked bingo card 10 before a bingo game is initiated informing the player that the gaming machine plays bingo. The bingo game based on diminishing returns requires that a player pre-selects a bingo number pattern conforming to  
30 pre-determined bingo game rules on the unmarked bingo card 10. The player may request that the bingo number pattern be selected by the gaming machine by activating a button located

on a portion of the gaming machine or by touching a portion of the electronic screen of the gaming machine. After the player inserts a wager into a slot of the gaming machine a new or different unmarked bingo card 10 may be displayed on the electronic screen. The wager comprises a plurality of coins or tokens, a plurality of bills, cash equivalents from a credit card or a cash card or a complementary card provided by a for-profit operator. In a for-amusement bingo game, point credits may substitute for cash equivalents.

The bingo card 10 is randomly generated by a random number generator of the gaming machine and may be changed without requiring a further wager by the player by activating another button located on a portion of the gaming machine or by touching a portion of the electronic screen of the gaming machine. It is understood that the player may decide to wager on more than a single unmarked bingo card 10 by inserting a further wager and by activating another button located on a portion of the gaming machine or by touching another portion of the electronic screen of the gaming machine designated for pre-selecting further unmarked bingo cards 10. More than one bingo card 10 may be displayed on the electronic screen of the gaming machine.

The player may wager a plurality of "quick-pick" bingo cards and "quick-pick" bingo number patterns by touching a portion of the electronic screen or activating yet another button on a portion of the gaming machine. A "quick-pick" is a bingo card comprising a bingo number pattern that is generated by the random number generator of the gaming machine.

The player wishing to play more than one bingo card 10 makes an additional wager for each additional bingo card 10 generated. The player pre-selects a bingo number pattern that

follows the posted rules of the bingo game by touching a portion of the electronic screen of the gaming machine where each one of the bingo numbers of the bingo card 10 are displayed. Alternatively the player may use a touch pad  
5 located on a portion of the gaming machine to enter the desired bingo number pattern. A number of possible bingo number patterns are shown in Figs. 1A-1E. The player may choose additional allowed bingo number patterns by making additional wagers for each additional bingo number pattern  
10 selected for the bingo card 10.

Fig. 1A is the portion of the electronic screen of the gaming machine showing the bingo card 10 of Fig. 1 marked up with potential patterns comprising four bingo numbers. According to Fig. 1A, a four number marked bingo card 12  
15 comprises a four number diagonal bingo pattern running from (F, A) to (J, E) and includes the bingo numbers B14, I23, FREE, G57 and O72. A second four number diagonal bingo pattern runs from (F, E) to (J, A) and includes the bingo numbers O71, G59, FREE, I25 and B1. Furthermore, a four  
20 number horizontal bingo pattern runs from (H, A) to (H, E) and includes the bingo numbers B7, I30, FREE, G55 and O65. Finally, a four number vertical bingo pattern runs from (J, C) to (F, C) and includes the bingo numbers N43, N36, FREE, N39 and N44.

25 Fig. 1B is the portion of the electronic screen of the gaming machine showing the bingo card 10 of Fig. 1 marked up with potential patterns comprising five bingo numbers. According to Fig. 1B, a five number marked bingo card 14 comprises each one of a five number vertical bingo pattern  
30 selected from the group consisting of a run from (F, A) to (J, A), a run from (F, B) to (J, B), a run from (F, D) to (J, D) and a run from (F, E) to (J, E). Furthermore, each one of a

five number horizontal bingo pattern is selected from the group consisting of a run from (J, A) to (J, E), a run from (I, A) to (I, E), a run from (G, A) to (G, E) and a run from (F, A) to (F, E).

5        Fig. 1C is the portion of the electronic screen of the gaming machine showing the bingo card 10 of Fig. 1 marked up with another set of potential patterns comprising four bingo numbers. A first four number bingo pattern of a four bingo number marked bingo card 16 comprises the corners of the bingo  
10    card 16 located at the co-ordinates (J, A), (J, E), (F, A) and (F, E). A second four number bingo pattern of the four bingo number marked bingo card 16 comprises the four number bingo pattern surrounding the "FREE" space located at the co-ordinates (I, C), (H, B), (H, D) and (G, C). It is understood  
15    that alternative four number bingo patterns may also be selected by the operator for achieving a "bingo", such as, (J, B), (J, D), (G, B) and (G, D).

      Fig. 1D is the portion of the electronic screen of the gaming machine showing the bingo card 10 of Fig. 1 marked up  
20    with a frame pattern comprising bingo numbers. The required winning bingo number pattern of a frame bingo number marked bingo card 18 comprises matching co-ordinates running from (F, A) to (F, E) plus (G, E) to (J, E) plus (J, D) to (J, A) plus (I, A) to (G, A). In the specific example shown in Fig. 1D  
25    the winning bingo number pattern consists of the bingo numbers B14, I16, N44, G47, O71, O67, O65, O69, O72, G49, N43, I26, B1, B13, B7 and B5.

      Fig. 1E is the portion of the electronic screen of the gaming machine showing the bingo card 10 of Fig. 1 marked up  
30    with a cover-all pattern comprising bingo numbers. The objective in the specific case of the cover-all bingo win is to match every co-ordinate of a cover-all marked bingo card 20

with the randomly drawn gaming machine bingo numbers. Since all bingo numbers are drawn in the variation of bingo according to this disclosure, a cover-all only pays out if less than a pre-selected quantity of random bingo numbers is drawn. Typically in traditional bingo the pre-selected quantity of bingo numbers is fifty for a major payout and sixty for a lesser payout. It is understood that the operator may decide an appropriate payout table for a cover-all bingo game. The cover-all bingo game allows an operator to increase suspense on the part of the player by offering a major jackpot, which is based on a minimal quantity of randomly generated bingo numbers needed to be drawn to match the player's marked bingo card 20 with decreasing winnings for the player as the quantity of randomly generated bingo numbers drawn increases. Further suspense may be generated by slowing the drawing rate for the randomly generated bingo numbers as the quantity of bingo numbers drawn is increased.

Fig. 2 is a portion of the electronic screen showing a bingo payout table 22 for the potential patterns comprising four bingo numbers of Fig. 1A. The bingo payout table 22 for the potential patterns comprising four bingo numbers is adjustable by the operator both in terms of the amount of the payout and the quantity of draws that it takes for there to be any payout to the player. Each bingo number drawn by the random number generator of the gaming machine is displayed on a portion of the electronic screen of the gaming machine. The player is made aware of all bingo numbers as they are drawn, resulting in suspense on the part of the player. Play does not cease until all bingo number patterns pre-selected by the player have been drawn by the random number generator of the gaming machine. Therefore, the player eventually achieves a bingo. If a match is made to a bingo number in the player's

plurality of pre-selected bingo number patterns, a portion of the electronic screen corresponding to the bingo number match is marked with a contrasting color or symbol. The updating bingo number markings of the electronic screen increase player  
5 suspense. It is understood that there may be aural, as well as visual indications of a match between the player's bingo numbers and the gaming machine's randomly generated bingo numbers.

When the drawing of all of the bingo numbers of the bingo  
10 game is complete a settlement is made with the player based on the player's wager. For example, in the payout table 22 of Fig. 2, the player receives no payout after a thirty-fifth bingo number is randomly drawn if the player achieves no matching bingo number pattern in less than thirty-five bingo  
15 numbers drawn by the random number generator of the gaming machine. However, a payout is awarded if the player's pre-selected bingo number pattern matches the gaming machine's randomly generated bingo number pattern by less than the thirty-fifth bingo number. Since bingo numbers continue to be  
20 randomly drawn until all of the player's pre-selected bingo patterns are matched, the player eventually achieves a bingo although there may be no monetary award to the player. The player has a diminishing payout as more random bingo numbers generated by the gaming machine do not match the player's pre-  
25 selected bingo number pattern. Suspense increases for the player as the quantity of bingo numbers drawn increases, particularly when the player's pre-selected bingo number patterns more closely match the bingo numbers which are drawn by the random number generator of the gaming machine. Each  
30 bingo number pattern that is pre-selected by the player is treated separately from any other pre-selected bingo number pattern during the bingo game, allowing the player to be



awarded a win for more than one pre-selected bingo number pattern. Jackpot features may be introduced into the award system based on the quantity of randomly drawn bingo numbers needed to match a variety of the player's pre-selected bingo number patterns.

Fig. 2A is a portion of the electronic screen of the gaming machine showing a bingo payout table 24 for the potential pattern comprising five bingo numbers of Fig. 1B. Since a potential pattern comprising five bingo numbers matching is more difficult to achieve than a potential pattern comprising four bingo numbers matching, the payout table 24 reflects a greater payout. The bingo payout table 24 for the potential pattern comprising five bingo numbers is adjustable by the operator both in terms of the amount of the payout and the quantity of draws that it takes for there to be any payout to the player. Other features of the payout table 24 are similar to the description for the payout table 22 supra. The operator may offer different levels of diminishing returns to the player based on the quantity of randomly generated bingo numbers it takes to match any combination of the player's pre-selected marked bingo cards 12, 14, 16, 18 and 20. For example, the operator may choose to award a payout for up to thirty-five randomly drawn bingo numbers in a player's pre-selected pattern match of four bingo numbers and an award for up to fifty randomly drawn bingo numbers for a player's pattern match of five bingo numbers.

After play of the bingo game has ceased and a settlement is made with the player, the player may cash out the award or continue to play another bingo game. A portion of the electronic screen of the gaming machine or a button on a portion of the gaming machine permits the player to selectively cash out the award. Alternatively, the player may

use a portion of the award as a credit to play another bingo game. The play of a new bingo game follows the method described supra.

While the disclosure has been particularly shown and  
5 described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the disclosure. For example, gaming machines may be interlinked  
10 with a network where a central processor keeps track of payouts on gaming machines and automatically adjusts payout tables based on the operator's desired level of profitability. The same network may be used to accumulate data on the level of profitability of the gaming machines on the network. The  
15 same network may assign a random instant jackpot win to any gaming machine on the network providing increased player interest and suspense by notifying all players on the network of gaming machines that a major jackpot has been awarded or will be awarded within a pre-selected time period. Rather  
20 than using bingo numbers for each bingo card, bingo indicia represented by icons could be substituted providing a more colorful experience for the player. Each one of the bingo cards may comprise an array having a plurality of spaces selectively filled with different numbers, the operator of the  
25 bingo game selecting a predetermined plurality of winning patterns of the bingo cards. The size of the array of a bingo card may be determined by the operator of the bingo game, and is not limited to a 5 X 5 conventional bingo card. The rate of randomly generating bingo numbers may be manually  
30 controlled by players during the play of the bingo game instead of being automatically controlled by the gaming machine.